## REMARKS

Reconsideration of the application is respectfully requested.

The following addresses the issues in the order they were raised in the Office Action.

Claims Rejected Under 35 U.S.C. §103

Claims 1-4, 6-9, 11, 12, 14-16, 18, 20, 21, 24, 25, 27-29, 31 and 33 stand rejected as being obvious under 35 U.S.C. §103(a), in view of U.S. Patent No. 6,813,275 issued to Sharma, et al. ("Sharma") and U.S. Patent No. 6,93 ,557 issued to Togawa ("Togawa"). Applicants respectfully disagree with the rejection for the following reasons.

Applicants' method in claim 1, involves preventing overflow of a buffer, and in particular, *in response to (i) detecting the non-data sequence at an inlet of the buffer and (ii) passing an indicator that refers to such detection through the buffer,* changing the unload pointer by more than one entry so that a non-data symbol is skipped while unloading from the buffer. The Office Action points to the following sections of Sharma as being relevant: Abstract, Fig. 3, Fig. 5, and col. 5, line 42 to col. 6, line 12.

Sharma discloses a technique for preventing overflow and underflow across an asynchronous channel. A certain number of drop-me warning packets and drop-me packets are sent by the transmitter periodically, between transactions. These packets are received in the buffer of the receiver. Packet overflow is compensated by skipping at least one drop-me packet, while a packet underflow is compensated by stalling access to the buffer for one or more clock cycles. See Sharma, Abstract, as well as Fig. 3 (transmitting chip 400, receiving chip 500, synchronizing FIFO 302, and inbound processing block 304). See also Fig. 5 which shows more detail regarding the logic used for controlling a read pointer 510 for pulling entries from the synchronizing FIFO 502 (at the receiver). Those sections of the text in Sharma as cited in the Office Action do not teach or suggest the particular manner in which overflow is prevented in Applicants' claim 1. The cited sections of Sharma merely refer to the general concept of avoiding overflow and under flow due to frequency differences between a transmitter and receiver, by either stalling a read pointer or skipping entries in the buffer, when the

entries that have been pulled from the buffer have been identified as special, drop-me packets. See Fig. 7, operations 710, 712, 714, and 716 of Sharma.

Although the Office Action at the bottom of page 3 recognizes that Sharma does not teach the buffer underflow and overflow prevention method limitations of Applicants' claim 1 as emphasized above, the Office Action, beginning at page 4, looks to the teachings of Togawa instead. The Office Action refers to Togawa, Fig. 8 and col. 8, line 49 to col. 9, line 50 as allegedly teaching the missing limitations highlighted above. Applicants respectfully disagree that Togawa teaches the missing limitation, and also disagree that it would have been obvious to modify Sharma, in accordance with Togawa (to arrive at Applicants' claim 1).

In Togawa, maximum reduction of power dissipation is needed for small sized and portable information processing apparatuses. Data that is processed in these information processing apparatuses consist of different types of data, such as moving pictures, sound and still pictures. A graphics board needs to be activated to display the moving pictures and still pictures, while a sound board needs to be activated to playback the sound data. If both the sound board and the graphics board are activated together, when only the sound board is needed (to play sound data and not display any moving or still pictures), then power efficiency degrades, because power supplied to the graphics board is wasted. Thus, to achieve precise power saving control, the information processing apparatus includes a detection unit which detects the type of data to be processed, and a control unit which controls each of a number of driving units, according to the type of data to be processed.

More specifically, and turning now to the sections cited in the Office Action, at col. 8, line 49 to col. 9, line 50 of Togawa, a gate 145 in a graphics controller controls the status of the connection among a bus 115, a voltage source 130, and a graphics board 112, based on an output signal from a register 148. Values are written in the register in response to commands from the CPU. The CPU detects the type of data of the file and writes the values to the register according to the type of data. The controller 114 turns a switch 147 on, when a power on/off flag 149 in the register 148 is "1". If the switch 147 turns on, power is supplied to a display device 151 to display pictures. In addition,

when the power on/off flag is "1", gate 145 turns on so that the graphics board 112 is connected to both voltage source 130 and bus 115.

The above paraphrased sections of Togawa which were cited in the Office Action are thus directed to detecting a type of data file and in response controlling the operation of a graphics board, in order to save power in a computer. This, however, is not compatible with the motivation given at the top of page 5 of the Office Action for modifying Sharma, namely to "provide a more accurate flow control and also further improve the control to the computer system by including power control". Sharma does not concern itself with power consumption problems. Rather, Sharma seeks a simple implementation that solves both the overflow and underflow problem using the same mechanism, reducing complexity by elimination of the control split between the transmitter and receiver clock domains. Accordingly, Applicants submit that Sharma and Togawa do not provide the needed motivation to combine the teachings of Togawa, as relied upon in the Office Action, with those of Sharma.

In addition, Applicants submit that Togawa does not teach the limitation highlighted above in Applicants' claim 1, namely *detecting a non-data sequence at an inlet of a buffer and passing an indicator that refers to such detection through the buffer.* In Togawa, the CPU detects the type of data file that is referring to, for example, a sound file, a still image file, or a moving picture file. This would not reasonably suggest to one of ordinary skill in the art that *a non-data sequence detected at an inlet of a buffer and an indicator be passed that refers to such detection through the buffer.* In Togawa, there is no relevant concept of Applicants' *buffer*. Of course, there is always some form of buffering in a computer system, such as the one in Togawa, but the teachings of Togawa do not involve any such buffer. Rather, as mentioned above, they are focused on controlling power savings by, for example, turning off a graphics board 112 when not needed to display any images or moving pictures. Accordingly, for these additional reasons, Togawa does not teach the above emphasized limitation of Applicants' claim 1 that is also missing from Sharma.

For all of the above reasons, Applicants submit that claim 1 is not obvious in view of Sharma and Togawa.

The next independent claim is claim 6 which is also submitted as being not obvious for at least the same reasons as given above for claim 1, although it should be noted that claim 6 is directed to the prevention of underflow in the buffer as opposed to overflow.

Turning now to claim 11, this claim is directed to an integrated circuit device having a buffer whose input is to receive symbols that were transmitted by another IC device over a serial point-to-point link. The IC device has *detect logic having an input to receive the symbols and an output to feed the input of the buffer a non-data symbol sequence identifier*. Pointer control logic is to stall a second pointer (used to sequentially unload the symbols from the buffer) at an entry that contains a non-data symbol, *in response to the identifier appearing at the output of the buffer* and an indication that the buffer is less full than a predetermined threshold. As recognized at page 7 of the Office Action, Sharma does not teach Applicants' claimed detect logic in claim 11, as well as the capability of the claimed pointer control logic which is to stall the second pointer at an entry that contains a non-data symbol in response to the identifier appearing at the output of the buffer. Rather, the Office Action alleges that Togawa teaches these missing limitations, and that it would have been obvious to modify Sharma with those teachings of Togawa.

Applicants, however, respectfully disagree with this rejection, because detecting the type of a media file, *e.g.* sound, still image, or moving picture, does not fairly suggest to one of ordinary skill in the art, *detect logic having an input to receive symbols transmitted by another IC device over a serial point-to-point link, and an output to feed the input of a buffer with a non-data symbol sequence identifier*. The identification in Togawa refers to the type of media file, not whether a *non-data symbol sequence* appears in a plurality of symbols that have been transmitted by another IC device over a serial point-to-point link.

Moreover, there does not appear to be sufficient basis to motivate one of ordinary skill in the art to combine any teachings of Togawa with those of Sharma. Sharma is concerned with simplifying the mechanism used to prevent overflow and underflow of a synchronizing FIFO at a receiving device, to elimination control splits between clock domains. Togawa is directed to reducing power consumption by turning

off certain output devices, such as a graphics display or a sound board, depending on the type of file to be played. There is no reasonable basis for believing that one of ordinary skill in the art would apply the concept of detecting the type of file for purposes of power consumption, to detecting at the receiver a special non-data sequence that is generated repeatedly by a transmitter, for purposes of avoiding overflow and underflow in a buffer. Accordingly, for those reasons, claim 11 is not obvious in view of Togawa and Sharma.

As to claim 15, this independent claim is also submitted as being not obvious for at least the reasons given above in support of claim 11.

Turning now to claim 21, this claim is directed at a method for buffer management in which *a predefined non-data symbol sequence is detected at an inlet of an elastic buffer, an identifier that represents detection of the sequence is passed through the buffer, and the identifier is processed at an outlet of the buffer to avoid overflow or underflow conditions in the buffer.* Neither Sharma or Togawa teach or suggest detecting a predefined non-data symbol sequence *at an inlet of an elastic buffer* and *passing an identifier that represents detection of the sequence through the elastic buffer* and *processing the identifier at the outlet of the buffer to avoid overflow and underflow in the buffer.* In Sharma, avoidance of overflow and underflow is based on pulling an entry from the sync FIFO, determining whether the entry is a drop-me warning packet, and, if so, then adjusting the read pointer accordingly based on the number of entries that are available in the sync FIFO. In contrast, Togawa is directed to detecting the type of file that is to be played back in a system and, based on that, turning off certain components of the system to reduce power consumption. There is no reasonable suggestion to modify Sharma to achieve the method recited in Applicants' claim 21.

Claim 24 is directed to an integrated circuit device that has the capability to avoid an overflow condition in a buffer. This claim is also submitted as not being obvious for at least the reasons given above in support of claim 11.

Finally, as to claim 28, this claim is also submitted as not being obvious for at least the reasons given above in support of claim 15, although it should be noted that

the pointer control logic in claim 28 is to respond to the identifier appearing at the output of the buffer, by advancing the second pointer rather than stalling it.

Any dependent claims not mentioned above are submitted as not being anticipated or obvious, for at least the same reasons given above in support of their base claims.

It should be noted that not all of the assertions made in the Office Action, particularly those with respect to the dependent claims, have been addressed here, in the interest of conciseness. Applicants reserve the right to challenge any of the assertions made in the Office Action by the Examiner, with respect to the relied upon art references and how they would relate to Applicants' claim language.

## CONCLUSION

In sum, a good faith attempt has been made to explain why the rejection of the claims is improper, and how the claims are believed to be in condition for allowance. A Notice of Allowance referring to claims 1-33, as amended here, is therefore respectfully requested to issue at the earliest possible date.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,
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By _____
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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, Post Office Box 1450, Alexandria, Virginia 22313-1450 on April 4, 2006.

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*Margaux Rodriguez* *April 4, 2006*